

### REMARKS

The Office Action of December 23, 2010 was received and carefully reviewed.

Claims 1-25 are currently pending in the instant application. Presently, claims 1-9 and 11-22 are hereby amended to clarify the invention, and not for reasons of patentability. Support for the amendment is found in FIGs. 1A to 1D, FIGs. 2A and 2B, and FIGs. 9A to 9D and FIG. 10. Thus, Applicants assert that no new matter has been introduced by the amendment to the independent claims.

Reconsideration and withdrawal of the currently pending rejections are requested for the reasons advanced in detail below.

#### *Claim Objections*

Claims 11-13, 16, and 17 stand objected to due to informalities noted by the Examiner in the Office Action. However, Applicants contend that the amendments to claims 11-13, 16, and 17 obviate the perceived informalities which were noted by the Examiner.

#### *Claim Rejections – 35 U.S.C. § 103*

Claims 1, 2, 5, 6, 7, 10, 13, 14, 15, 18, 19, 23, and 24 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Yamazaki et al. (U.S. Pub. No.: 2001/0055841) (*Yamazaki '841*, hereinafter) in view of Takao (JP 2003-058077) (*Takao*, hereinafter) and Yamazaki et al. (U.S. Patent No.: 6,355,941) (*Yamazaki '941*, hereinafter). Claims 3, 8, 16, and 21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Yamazaki '841* in view of *Takao*. Applicants traverse the rejections for at least the following reasons.

Independent claims 1-4, 6-9, 14-17, and 19-22 are patentably distinguishable over *Yamazaki '841*, *Takao*, and *Yamazaki '941*, taken either alone or in combination, since these references fail to disclose, teach, or suggest each and every feature recited in the pending claims. For example, independent claims 1 to 4, 6 to 9, 14 to 17, and 19 to 22, these claims have been amended to recite “over and in direct contact with” rather than “on” for claims 1 to 4 and 14 to 17, and add “and in direct contact with” for claims 6 to 9 and 19 to 22.

It is Applicant's contention that neither *Yamazaki '841*, *Takao*, and *Yamazaki '941*, taken either singly or in any proper combination, anticipate or render obvious at least the

above-identified combination of features recited in present independent claims 1-4, 6-9, 14-17, and 19-22.

It appears that the primary reference *Yamazaki '841* seems remain silent with regard to numerous features of the presently claimed invention, as acknowledged by the Examiner on pages 3 and 8 of the Office Action. *Takao*, upon whom the Examiner is reliant for teaching these features does not appear to disclose the newly amended feature to the independent claims because in FIGs. 9 and 10 of that reference, the gate electrode 26 is not in direct contact with a substrate having a photocatalytic surface (TiO<sub>2</sub>) as shown below.

Further, Applicants contend that D3 (although the Examiner's says D3 is *Yamazaki '941*, the content of the Office Action corresponds to U.S. Pub. No.: 2001/0025958 of Yamazaki et al.) does not cure the deficiency in D2.

Thus, Applicants respectfully submit that the Examiner has failed to set forth a proper *prima facie* case of obviousness in rejecting independent claims 1-4, 6-9, 14-17, and 19-22 under 35 U.S.C. 103(a). For at least the above-stated reasons, it is respectfully requested that the rejection of claims 1-4, 6-9, 14-17, and 19-22 be withdrawn, and that these claims receive allowance.

Claims 5, 10-13, 18, and 23-25 are allowable at least by virtue of their dependency from one of the independent claims, but also because they are distinguishable over the prior art. Thus, Applicants respectfully request that the rejection of 5, 10-13, 18, and 23-25 be withdrawn and that these claims receive allowance.

New claims 57-68 are distinguishable over the prior art, and thus are in condition for immediate allowance. Applicants respect such action.

In view of the foregoing remarks, this claimed invention, as amended, is not rendered obvious in view of the prior art references cited against this application. Applicant therefore requests the entry of this response, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

In discussing the specification, claims, and drawings in this response, it is to be understood that Applicant in no way intends to limit the scope of the claims to any exemplary embodiments described in the specification and/or shown in the drawings. Rather, Applicant is entitled to have the claims interpreted broadly, to the maximum extent permitted by statute, regulation, and applicable case law.

**Except** for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 19-2380. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

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